



## UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/032,648	10/23/2010	Takeo Kanade	010329	6170
26285	7590	06/21/2010	EXAMINER	
K&L GATES LLP 210 SIXTH AVENUE PITTSBURGH, PA 15222-2613			ANYIKIRE, CHIKAODILI E	
ART UNIT	PAPER NUMBER			
	2621			
MAIL DATE	DELIVERY MODE			
06/21/2010	PAPER			

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/032,648	<b>Applicant(s)</b> KANADE ET AL.
	<b>Examiner</b> CHIKAODILI E. ANYIKIRE	<b>Art Unit</b> 2621

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED. (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 17 May 2010.
- 2a) This action is FINAL.      2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-3 and 5-42 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-3 and 5-42 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 23 October 2001 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) Notice of References Cited (PTO-892)  
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)  
 3) Information Disclosure Statement(s) (PTO/SB/08)  
 Paper No(s)/Mail Date \_\_\_\_\_
- 4) Interview Summary (PTO-413)  
 Paper No(s)/Mail Date. \_\_\_\_\_
- 5) Notice of Informal Patent Application  
 6) Other: \_\_\_\_\_

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :20011023, 20021107, 20031027, 20050126, 20050516.

#### **DETAILED ACTION**

1. This application is responsive to application number (10032648) filed on October 23, 2001. Claims 1-3 and 5-42 are pending and have been examined.

#### ***Continued Examination Under 37 CFR 1.114***

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on May 17, 2010 has been entered.

#### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
5. Claims 1-11, 14-24, and 27-36 rejected under 35 U.S.C. 103(a) as being unpatentable over Foote et al (US 7,015,954, hereafter Foote) in view of Gutta et al (US 2003/0052971, hereafter Gutta).

As per **claim 1**, Foote discloses a system for obtaining video of a moving fixation point within a scene, comprising:

a control unit (col 6 lines 37-43; sends out commands regarding pan, zoom);  
  
a plurality of non-moving image capturing devices positioned around the scene, wherein the scene is within a field of view of each image capturing device (Fig 1A element 10, col 5 lines 51-53 and 57-61);  
  
a plurality of image generators (Fig 1A element 10), wherein each image generator is in communication with one of the image capturing devices, and wherein a first of the image generators is responsive to a command from the control unit (col 11 lines 53-55), and wherein the plurality of image generators are each for generating image frames based on one or more images captured by their associated image capturing device; and  
  
a surround-view image sequence generator (Fig 12 element 1220) in communication with each of the image generators and responsive to the command from the control unit for generating a surround-view video sequence of the fixation point based on output from certain of the image generators (column 11 lines 59-62), wherein

the surround-view video sequence comprises a sequence of image frames, wherein each image frame in the sequence is from one the plurality of image generators and the image frames are sequenced based on a placement of the image capturing devices around the scene, and wherein the surround-view image sequence generator is for determining a viewing angle parameter and a zoom parameter for each of the image generators except the first image generators based on a command from the control unit such that the fixation point is in the image frame generated by each of the image generators and such that the size of a point of interest at the fixation point is the same for each image generator (column 11 lines 59-62), and

wherein the image generators other than the first image generator are configured to generate the image frame based on the one or more images captured from the image generators' associated image capturing devices based on the viewing angle parameter and the zoom parameter received from the surround-view image sequence generator (column 6 lines 37-43 and column 11 lines 59-62).

However, Foote does not explicitly teach a plurality of image capturing device position to substantially surround the scene, wherein the scene is within a field of view of each image capturing device.

In the same field of endeavor, Gutta teaches a plurality of image capturing device position to substantially surround the scene, wherein the scene is within a field of view of each image capturing device (Fig 3a, C1-C4, paragraph [0003] and [0016]).

Therefore, it would have been obvious for one having skill in the art at the time of the invention to modify the invention of Foote with the Gutta. The advantage would be the ability to accommodate and adjust an image when a partial image is detected (paragraph [0006]).

As per **claim 2**, Foote discloses the system of claim 1, further comprising an inter-image capturing device calibration database in communication with the surround-view image sequence generator (col 9 lines 52-61; Foote discloses calibration between two cameras).

As per **claim 3**, Foote discloses the system of claim 1, wherein the first image generator is responsive to a viewing angle command and a zoom command from the control unit (col 6 lines 37-43).

As per **claim 5**, Foote discloses the system of claim 4, wherein the surround-view image sequence generator includes:

a mapping module for outputting a command to each of the image generators other than the first image generator based on the command from the control unit (col 11 lines 59-62); and

an image sequencing module in communication with each of the image generators for outputting the image from certain of the image generators in sequence according to the position of the image generators around the scene (col 11 lines 59-62).

As per **claim 6**, Foote discloses the system of claim 4, further comprising an inter-image capturing device calibration database in communication with the mapping module (col 9 lines 52-61).

As per **claim 7**, Foote discloses the system of claim 1, wherein each of the image capturing devices includes a camera bank including a plurality of non-moving cameras (Fig 1b, Col 5 Ln 64 - 66).

As per **claim 8**, Foote et al disclose the system of claim 7, wherein at least one of the image generators is in communication with an intra-bank calibration database (Col 6 Ln 19-43; the prior art discloses the images being taken coming from individual cameras which serve as the database for the images taken by that camera).

As per **claim 9**, Foote discloses wherein each of the image capturing devices includes a non-moving panoramic wide field of view camera (Fig 2A, Col 6 Ln 19-30).

As per **claim 10**, Foote discloses wherein each of the image capturing devices is selected from the group consisting of a non-moving panoramic wide field of view camera and a camera bank having a plurality of non-moving cameras (Col 6 Ln 31-43).

As per **claim 11**, Foote discloses the system of claim 1, wherein the image capturing devices are periodically positioned around the scene (col 7 lines 4-7).

As per **claim 14**, Foote discloses the system of claim 1, the system further comprising a computer vision module in communication with the control unit (col 7 lines 64-67).

As per **claim 15**, Foote discloses the system of claim 1, wherein the computer vision module is further for selecting a second image generator to be responsive to the command from the control unit (col 7 lines 64-67).

As per **claim 16**, Foote discloses the system of claim 1, further comprising a second control unit, wherein one of the image generators (Fig 1A element 10) is responsive to a command from the second control unit (col 6 lines 37-43), and wherein the surround-view image sequence generator is further for generating a second surround-view video sequence of a second fixation point within the scene based on output from certain of the image generators and the command from the second control unit (col 11 lines 59-62).

As per **claim 17**, Foote discloses the system of claim 16, wherein the first image generator (Fig 1A, element 10) is responsive to the command from the second control unit (col 6 lines 37-43).

Regarding **claim 18**, arguments analogous to those presented for claim 1 and 3-5 are applicable for claim 18.

Regarding **claim 19**, arguments analogous to those presented for claim 6 are applicable for claim 19.

Regarding **claim 20**, arguments analogous to those presented for claim 10 are applicable for claim 20.

Regarding **claim 21**, arguments analogous to those presented for claim 11 are applicable for claim 21.

Regarding **claim 22**, arguments analogous to those presented for claim 14 are applicable for claim 22.

Regarding **claim 23**, arguments analogous to those presented for claims 3, 5, and 16 are applicable for claim 23.

Regarding **claim 24**, arguments analogous to those presented for claim 3 are applicable for claim 24.

Regarding **claim 27**, arguments analogous to those presented for claims 1 and 18 are applicable for claim 27.

Regarding **claim 28**, arguments analogous to those presented for claim 10 are applicable for claim 28.

Regarding **claim 29**, arguments analogous to those presented for claim 11 are applicable for claim 29.

Regarding **claim 30**, arguments analogous to those presented for claim 3 are applicable for claim 20.

Regarding **claim 31**, arguments analogous to those presented for claims 3, 4, and 12 are applicable for claim 31.

Regarding **claim 32**, arguments analogous to those presented for claim 13 are applicable for claim 32.

Regarding **claim 33**, argument analogous to those presented for claims 1 and 3 are applicable for claim 33.

Foote et al teach a virtual camera (Col 6 Ln 31-43).

Regarding **claim 34**, arguments analogous to those presented for claim 5 are applicable for claim 34.

Regarding **claim 35**, arguments analogous to those presented for claim 23 and 33 are applicable for claim 35.

Regarding **claim 36**, arguments analogous to those presented for claim 5 are applicable for claim 36 (the prior art describes a system that is operating continuously and therefore take multiple images to produce multiple scenes based on the position given to the system).

Regarding **claim 37**, arguments analogous to those presented for 1 and 33 are applicable for claim 37.

Regarding **claim 38**, arguments analogous to those presented for claim 5 are applicable for claim 38.

Regarding **claim 39**, arguments analogous to those presented for claim 6 are applicable for claim 39.

Regarding **claim 41**, arguments analogous to those presented for claim 40 are applicable for claim 41.

Regarding **claim 42**, arguments analogous to those presented for claim 1 are applicable for claim 42.

6. Claims 12-13 and 25-26 rejected under 35 U.S.C. 103(a) as being unpatentable over Foote et al (US 7,015,954) in view of Gutta et al (US 2003/0052971, hereafter Gutta) in further view of DiMatteo (US 4,396,945).

As per **claim 12**, Foote discloses the system of claim 1, a system further comprising:

an additional image generator in communication with the moving camera and in communication with the surround-view image sequence generator col 11 lines 53-55),

wherein the additional image generator is responsive to a second command based on the command from the control unit (col 6 lines 39-43).

However, Foote does not explicitly teach a system further comprising:

a moving camera having a field of view within the scene; and

In the same field of endeavor, DiMatteo et al teach a system further comprising:

a moving camera (Fig 2, element 17) having a field of view within the scene (Col 3 Ln 6-8; the prior art discloses that the cameras are servo controlled to center the field of view).

Therefore, it would have been obvious for one having ordinary skill in the art at the time of the invention to modify the invention of Foote in view of DiMatteo et al. The high optical magnification optimizes the angle determining precision of the system (Col 3 Ln 10-12).

As per **claim 13**, Foote discloses the system of claim 12, wherein the moving camera includes a pan/tilt camera (col 6 lines 37-43).

Regarding **claim 25**, arguments analogous to those presented for claims 5 and 12 are applicable for claim 25.

Regarding **claim 26**, arguments analogous to those presented for claim 13 are applicable for claim 26.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHIKAODILI E. ANYIKIRE whose telephone number is

(571)270-1445. The examiner can normally be reached on Monday to Friday, 7:30 am to 5 pm, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marsha D. Banks-Harold can be reached on (571) 272 - 7905. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Marsha D. Banks-Harold/  
Supervisory Patent Examiner, Art Unit 2621  
/Chikaodili E Anyikire/  
Patent Examiner AU 2621